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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,274	06/23/2006	Heinrich Haas	062587-5010	4612

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MORGAN LEWIS & BOCKIUS LLP
1111 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 20004

EXAMINER	
DICKINSON, PAUL W	

ART UNIT	PAPER NUMBER
1618	

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11/25/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/584,274	HAAS ET AL.	
	Examiner	Art Unit	
	PAUL DICKINSON	1618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-15 and 17-22* is/are pending in the application.

4a) Of the above claim(s) *17 and 22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-15 and 18-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I in the reply filed on 8/27/2009 is acknowledged.

The traversal is on the ground(s) that the common technical feature of the two inventions is cationic nanoparticles characterized by a narrow size distribution and a high degree of homogeneity. US 20060292183 does not disclose nanoparticles characterized by a narrow size distribution and a high degree of homogeneity, the technical feature shared by the methods and products of the claims.

This is not found persuasive because while the claims are read in light of the specification, limitations from the specification are not imported into the claims. Nowhere does Group I nor Group II, as claimed, limit the nanoparticles to those with a narrow size distribution and a high degree of homogeneity. The Examiner maintains that the common technical feature of the claimed inventions is cationic homogenous colloidal nanoparticles wherein said nanoparticles are free of an organic solvent. For the sake of argument, if the common technical feature of Groups I and II were nanoparticles characterized by a narrow size distribution and a high degree of homogeneity, the nanoparticles of US 20060292183 do have a narrow size distribution and a high degree of homogeneity (see Figure 11), and would still anticipate the common technical feature.

The requirement is still deemed proper and is therefore made FINAL.

Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objects are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

New Grounds of Rejection

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3, 5, and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites “produced by the film method”. It is unclear what “the film method” is. If this is a standard test, what is the protocol and conditions of the experiment?

Claim 5 recites “a mixture of lipids, preferably a mixture of at least one cationic lipid and optionally a neutral lipid." The phrase "preferably" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim 12 recites "biologically active agents such as dietary supplements, vitamins, cosmetics, diagnostic or therapeutic agents, preferably from diagnostic or therapeutic agents". The phrase "such as" renders the claim indefinite because it is

unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-7, 9-15, and 19-21 are rejected under 35 U.S.C. 102(e) as being anticipated by US 20050129750 ('750). '750 discloses a method for producing homogeneous colloidal nanoparticles, comprising (a) extruding a composition comprising a phospholipid (at least one amphiphilic component) by means of a syringe or frit (a compounder; a batch extruder) before the formation of liposomes, wherein the composition is extruded without an organic solvent, (b) dispersing the extruded composition of step (a) in an aqueous medium to form liposomes (see abstract; Example 1; claim 1). This satisfies instant claims 1, 3-7, and 11. The extrusion temperature is at 60 ^{o}C, which satisfies instant claims 9 and 19-20. The Examiner interprets "about 25 ^{o}C to about 50 ^{o}C" (instant claim 20) to encompass 60 ^{o}C because the recitation of "about" opens the range to values near 25 ^{o}C to 50 ^{o}C. The extrusion

pressure is 3 to 10 kg/cm^2 (2.9 to 9.8 bars), which satisfies instant claims 10 and 21. Active agents may optionally be added to the formulation, such as doxorubicin (a biologically active agent), which satisfies instant claim 12. The Examiner notes that even if '750 did not disclose incorporation of active agents, it would still meet instant claim 12, as the active agents are optional in instant claim 1 and there is no language in claim 12 that indicates that they are required by claim 12. Claim 12 merely limits the choices of optional active agent. The extruded composition of '750 may be stored as an intermediate product that is later supplied to a hydration process (see paragraph 55) which satisfies instant claims 13-14. The method of '750 is for manufacturing a cosmetic or pharmaceutical composition, which satisfies instant claim 15.

Regarding instant claims 3 and 6, although '750 fails to disclose these properties, such properties must be inherent. A composition cannot be separated from its properties, and based on the substantially identical process using identical components, the Examiner has a reasonable basis to believe that the properties claimed in the present invention are inherent in the nanoparticles of '750. ""[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." Atlas Powder Co. v. Ireco Inc., 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. In re Best, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977)." MPEP § 2112, I.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3-12, 15, and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5277914 ('914) in view of US 20050175683 ('683) as evidenced by US 20050079354 ('354). '914 teaches a method for producing homogenous colloidal

nanoparticles comprising (a) extruding a composition comprising at least one amphiphilic component by means of a compounder before the formation of liposomes, wherein the composition is extruded with an aprotic solvent, (b) dispersing the extruded composition of step (a) in an aqueous medium to form liposomes (see col 2, line 60 to col 3, line 16; col 4, line 64 to col 5, line 7). The aprotic solvent may be dimethylsulfoxide (see col 5, line 13). Except for the choice of solvent, this reads on instant claims 1, 3, 6-8. The amphiphilic component may be a cationic lipid or a mixture of lipids, which reads on instant claims 4-5 (see col 3, line 67 to col 4, line 17). The extrusion temperature is 30 ^{o}C (see col 7, lines 25-28) and the pressure is reasonably about 1 atm (about 1 bar) (see col 7, lines 47-67), which reads on instant claims 9-10 and 19-21. Biologically active agents may be added (see col 3, lines 54-66), which reads on instant claim 12. The Examiner notes that even if '914 did not disclose incorporation of active agents, it would still meet instant claim 12, as the active agents are optional in instant claim 1 and there is no language in claim 12 that indicates that they are required by claim 12. Claim 12 merely limits the choices of optional active agent. The liposomes may be used as a pharmaceutical composition (see Example 4), which reads on instant claim 15. The extrusion means may be a syringe (a batch extruder) having an aperture of about 0.8 mm (see col 5, lines 39-42), which reads on instant claims 11 and 18. '914 fails to disclose carrying out the extrusion (step (a)) without an organic solvent.

'683 is directed to a method of preparing liposomes by adding discrete droplets of vesicle-forming lipids in a solvent into an aqueous solution to form liposomes suitable

for *in vivo* administration (see abstract). This method is analogous to '914 except that it uses methods other than a compounder to produce the discrete droplets of vesicle-forming lipids in a suitable solvent. Suitable solvents include carbon disulfide and dimethylsulfoxide (see paragraph 101).

It would have been obvious to one of ordinary skill at the time the instant invention was made to use carbon disulfide (an aprotic solvent) as the extrusion solvent in the method of '914. The rationale for this is that this solvent is not only known to serve as a liposome-forming solvent, but '683 teaches that discrete droplets of vesicle-forming lipids in carbon disulfide, when dispersed in an aqueous medium, form liposomes suitable for *in vivo* administration. This is the same methodology used by '914. Furthermore, carbon disulfide and dimethylsulfoxide (taught by '914) are functional equivalents. Both solvents may be used to form discrete vesicle-forming lipid droplets which, upon dispersion in an aqueous medium, form liposomes. As '914 teaches dimethylsulfoxide, and '683 teaches that dimethylsulfoxide and carbon disulfide are functional equivalents in this capacity, it would have been obvious to substitute dimethylsulfoxide with carbon disulfide as the extrusion solvent of '914. This is no more than using an art recognized solvent for its art recognized purpose. Carbon disulfide is an inorganic solvent (see '354; paragraph 32). Accordingly, use of carbon disulfide as the extrusion solvent reads on instant claim 1.

Regarding the pressure of extrusion, the Examiner finds it reasonable that the extrusion was performed at about 1 bar, which anticipates Applicant's range of about 0.2 bar to about 100 bar. Alternatively, '914 gives clear guidance to the conditions of

the extrusion process, including temperature (see col 5, lines 59-61), aperture size (see col 5, lines 39-42) and flow rate (see col 5, lines 42-46). It would have been obvious to optimize the pressure, through routine experimentation, to find the pressure needed to produce the desired flow rate through the desired aperture size. In this way, one would find the instant range of about 0.2 bar to about 100 bar. See MPEP § 2144.05, II.

Regarding instant claims 3 and 6, although '914 and '683 fails to disclose these properties, such properties must be inherent. A composition cannot be separated from its properties, and based on the substantially identical process using identical components, the Examiner has a reasonable basis to believe that the properties claimed in the present invention would be inherent in the nanoparticles rendered obvious by '914 in view of '683. ""[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." Atlas Powder Co. v. Ireco Inc., 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. In re Best, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977)." MPEP § 2112, I.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL DICKINSON whose telephone number is (571)270-3499. The examiner can normally be reached on Mon-Thurs 9:00am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Hartley can be reached on 571-272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eric E Silverman/
Primary Examiner, Art Unit 1618

Paul Dickinson
Examiner
AU 1618

November 18, 2009